

RUSU, Andrei; ROZENFELD, I.; NISTOR, Cornel, ing.; MARCHEAN, Ioan, ing.;  
GAVRILA, T., ing.

Well-known problems but still insufficiently solved. Constr Buc  
15 no.723:3 16 N '63.

1. Director al Trustului Regional de Constructii de Locuinte,  
Maramures (for Rusu). 2. Directorul I.I.M.I., Bucuresti (for  
Rozenfeld). 3. Director tehnic al D.G.C.M.U.C.R. (for Nistor).  
4. Directorul Intreprinderii no.2, Sibiu a Trustului Regional de  
Constructii de Locuinte, Brasov (for Marchean). 5. Directorul  
I.C.L., Bucuresti (for Gavrila).

ROSENBERG, I.

"Review of 'A Collection of Scientific Works of the Otorhinolaryngology  
Clinic of the Kuban' Medical Institute'". Vest. Oto-rino-laringol. No.  
3, 1949. Prof.

ROZENFEL'D, I., inzh.

Calculations of the deformations of foundations of industrial  
buildings and structures. Prom.stroi.i inzh.soor. 4 no.2:46-  
49 Mr-Ap '62. (MIRA 15:11)  
(Foundations)

ROZENFEL'D, I.A., inzh.

Planning and constructing industrial buildings under difficult  
geological conditions. Sbor. nauch. rab. Bel. politekh. inst.  
no.77:91-106 '59. (MIRA 13:3)  
(Lvov--Factories--Design and construction)  
(Foundations)

ROZENFEL'D, I.A.

Shortened boring bars. Put' i put.khoz. 7 no.4:12 '63. (MIRA 16:3)

1. Nachal'nik Gosudarstvennogo instituta po geologicheskim  
izyskaniyam i proyektirovaniyu shchebennykh zavodov i kar'yerov.  
(Railroads—Equipment and supplies)

1ST AND 2ND COLUMNS																										3RD AND 4TH COLUMNS																									
1ST AND 2ND COLUMNS													3RD AND 4TH COLUMNS													5TH AND 6TH COLUMNS													7TH AND 8TH COLUMNS												
Carbon electrodes of galvanic cells. I. A. Rozenfel'd Russ. 43,446, June 30, 1965. Carbon electrodes are made less porous by impregnation with machine oil to which has been added about 15-20% paraffin wax.																																																			
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION																																																			

ROZENFAL'D, I.A., inzh.

Standardizing reinforced concrete elements for open crane gantries.  
Stroi. prom. 36 no.2:15-16 F '58. (MIRA 11:2)  
(Cranes, derricks, etc.) (Precast concrete construction)

137-58-4-7208

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 127 (USSR)

AUTHORS: Fomichev, I. A., Ostrenko, R. Ya., Rozenfel'd, I. B., Bobrakov, L. D.

TITLE: The Technical Foundations of the Production of 529 mm Tube on the 400 Mill of the Transcaucasian Plant (Tekhnologicheskiye osnovy proizvodstva trub diam. 529 mm na stane "400" Zakavkazskogo zavoda)

PERIODICAL: Byul. nauchno-tekhn. inform. Vses. trubnyy in-t, 1957, Nr 3, pp 17-25

ABSTRACT: The possibility of producing 529 mm diameter tubing (T), needed for gas and oil pipelines, on a 400 mill is established. Preliminary experiments with T of smaller size (325 and 273 mm diameter) showed that the amount of increase in diameter in the expansion of sleeves in two piercing mills may be as much as 40 percent and made it possible to carry out the necessary reconstruction of the plant equipment in order to develop a plan for a rolling schedule for making T of 529 mm diameter from 350 mm blanks. The rolling table envisages the production of 420 mm sleeves from the Nr 1 piercing mill and 520 mm diameter sleeves from the Nr 2.

Card 1/2



137-58-4-7208

The Technical Foundations of the Production of 529 mm Tube (cont.)

The following changes were made in the grooving of the piercing mill rolls: the entry taper was increased from  $3^{\circ}30'$  to  $4^{\circ}$ , and the exit taper from  $4^{\circ}$  to  $9^{\circ}$ . Rolls of minimum diameter were used to reduce loading. The diameter of the pass when rolling in an automatic mill was 51 mm. The diameter of the T past the reeling mill was 540-550 mm, and this assured the required reduction in diameter in the sizing mill. The profile of the rolls of the reeling mill was changed so that the entry taper was  $2^{\circ}30'$ . The sizing mill was arranged for work with various stands. The diameter of the pass in the fourth stand was 534 mm. Technical and power calculations are presented, and these are to be used in organization of manufacture.

I. M.

1. Steel tubing--Manufacture
2. Piercing mills--Equipment

Card 2/2

ROZENFEL'D, Iosif Borisovich; POTEKHIN, Leonid Valer'yevich;  
KUDRYASHOV, R., otv. red.

[Control over the financial operations of institutions  
serving social and cultural needs] Kontrol' za finansovoi  
deiatel'nost'iu sotsial'no-kul'turnykh uchrezhdenii.  
Moskva, Finansy, 1965. 189 p. (MIRA 18:4)

POTEKHIN, Leonid Valer'yevich; RCZENFEL'D, Iosif Borisovich; ITIN, Naum Yefimovich; KUDRYASHOV, R., red.; SHATROVA, T., red. izd-va; TELEGINA, T., tekhn. red.

[Planning expenditures for social and cultural measures]  
Planirovanie raskhodov na sotsial'no-kul'turnye meropri-  
iatiia. Moskva, Gosfinizdat, 1962. 286 p. (MIRA 15:11)  
(Education—Finance) (Public health—Finance)

ROZENFEL'D, I.I., dotsent

Ration between the volume of outpatient-polyclinic and hospital care of the population. Zdrav.Ros.Feder. 3 no.12:21-28 D '59.

(MIRA 13:4)

1. Iz kafedry organizatsii zdravookhraneniya (zaveduyushchiy - prof. N.A. Vinogradov) TSentral'nogo instituta usovershenstvovaniya vrachey (direktor M.D. Kovrigina).  
(MEDICAL CARE)

ROZENFELD, I.I., dotsent (Moskva)

Some new modes of public health planning. Sov. zdrav. 20  
no.12:24-34 '61. (MIRA 15:6)

1. Iz kafedry organizatsii zdravookhraneniya (sav. - prof.  
N.A. Vinogradov) Tsentral'nogo instituta usovershenstvovaniya  
vrachey (dir. M.D. Kovrigina).

(PUBLIC HEALTH ADMINISTRATION)

ROZENFEL'D, I.I., dots.

Distribution and utilization of physicians in the U.S.S.R [with summary in English]. Sov.zdrav. 18 no.1:25-31 '59.

(MIRA 12:2)

1. Iz kafedry organizatsii zdavookhraneniya (zav. - prof. N.A. Vinogradov) Tsentral'nogo instituta usovershenstvovaniya vrachey (dir. V.P. Lebedeva).

(PUBLIC HEALTH,

in Russia, personnel distribution & utilization  
(Rus))

ROZENFEL'D, I.I.

Analysis of the disposition of medical personnel and public health institutions as a first step in planning. Zdrav.Ros.Feder. 3 no.1: 5-11 Ja '59. (MIRA 12:2)

1. Iz kafedry organizatsii zdravookhraneniya (zav. - prof. N.A. Vinogradov) Tsentral'nogo instituta usovershenstvovaniya vrachey (dir. V.P. Lebedeva).

(PUBLIC HEALTH)

ROZENFEL'D, I. I.

[Prophylactic and medical service in cities] Lechebno-pro-  
filakticheskoe obsluzhivanie gorodskogo naseleniia. Moskva,  
Medgiz, 1954. 238 p. (MIRA 8:6)

(Public health)



ROSENFIELD, I. I.

5887

osnovy and metodika planirovaniya zdorookhraneniya. M., medgiz  
1954, 20sm. (naivo zdorabo-okhraneniya sser. tsentr. in-t usoversh-  
enstvovaniya vrachey. kafedra organizatsii zdorookhraneniya  
leksiipo organizatsii zdoravookhraneniya dlya vrachey. pod obsh-  
ch. red n.s. khmeleva i n.a. sinogrekova. b-kh vracha organiz-  
tora) (1) lechebno- profilakticheskoye obsluzhivaniye gorodskogo  
naseleniya. 240 s. 10.000 ekz. 6r. 40k.  
(55-936)p 6142: 658.51

SO: Knizhnaya Letopis', vol.1. 1955

ROZENFEL'D, I.I., dotsent

Theory and practice in public health planning. Sov. zdrav. 16  
no.2:39-48 F '57 (MLRA 10:4)  
(PUBLIC HEALTH  
in Russia, planning)

ROZENFEL'D, Il'ya Isayevich; NOVGORODTSEV, G.A., red.; ZUYEVA, N.K., tekhn.  
red.

[Principles and methods in the planning of the public health system]  
Osnovy i metodika planirovaniia zdравookhraneniia. Moskva, Gos. izd-  
vo med. lit-ry Medgiz. Pt.3. [Planning to meet the needs of the public  
health system for medical personnel] Planirovanie potrebnosti zdравo-  
okhraneniia vo vrachebnykh kadrakh. 1961. 202 p. (MIRA 14:8)  
(PUBLIC HEALTH) (MEDICAL PERSONNEL)

USSR/ Chemistry - Phys. chemistry

Card 1/1 Pub. 40 - 3/25

Authors : Gerasimov, V. V.; Akimov, G. V. and Rozenfel'd, I. L.

Title : Effect of thermal factor on the rate of metal corrosion in electrolytes

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 12-15, Jan 1956

Abstract : The effect of temperature on the rate of corrosion with various limitations was investigated on corrosion element models and on a real microelement of a zinc alloy containing 0.92% Fe. It was found that the rate of the corrosion process with change in temperature is due in the first place to the change of the thermal factor which controls the corrosion process. The effect of temperature on the rate of corrosion was studied at various forms of cathode control. It was established that the corrosion limited only by the rate of oxygen oxidation has a maximum increase and the rate of oxidizer travel has a minimum increase with temperature. Four USSR references (1941-1952). Tables; graphs.

Institution : Acad. of Sc. USSR, Inst. of Phys. Chem.

Submitted : June 6, 1955

5(4), 18(6)

AUTHORS:

Marshakov, I. K., Rozenfel'd, I. L.

SOV/76-33-1-37/45

TITLE:

The Mechanism of Metallic Corrosion in Cracks and Crevices  
(Mekhanizm korrozii metallov v zazorakh i shchelyakh).  
V. The Corrosion of Copper and Its Alloys  
(V. Korroziya medi i eye splavov)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 1, pp 219-223  
(USSR)

ABSTRACT:

The corrosion mechanism of copper and its alloys in narrow cracks and crevices differs from the observations made up to now (Refs 1, 2). Publications show no uniform opinion on the copper corrosion in cracks (Refs 3, 4). Since copper and its alloys are used for the construction of vessels and heat exchangers (Refs 5, 6) the examination of this corrosion type is of special importance. The method of investigation has already been described (Ref 7). Copper, bronze, and brass (the composition is shown in a table) were tested in 0.5 n NaCl solutions. The cathode process as well as the anodic dissolution of copper (Fig 1) are stopped by the accumulation of copper ions in the cracks and thus the corrosion of copper is reduced. In the case of a contact between crack and outer

Card 1/2

The Mechanism of Metallic Corrosion in Cracks  
and Crevices. V. The Corrosion of Copper and Its Alloys

SOV/76-33-1-37/45

surface macro-elements are formed and the metal in the crack turns into the cathode, the outer metal surface into the anode (Fig 3). Thus, the corrosion does not occur inside the crack but outside, very close to the crack. The same is true of bronze, whereas brass reacts in a different way. In crevices (0.5 mm and below) of brass the corrosion is stronger in the crevices and may reach a twentyfold value, especially on contact with the outer surface (Fig 4). In this case the brass crevice acts as anode. The anodic polarization as well as the corrosion of brass lead to a selective dissolution with zinc being favorably dissolved. The strong zinc reduction in brass crevices can be explained by a more difficult oxygen access as has been found by tests in a hydrogen atmosphere ( Table 2). There are 5 figures, 3 tables, and 9 references, 7 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut fizicheskoy khimii, Moskva  
(Academy of Sciences USSR, Institute of Physical Chemistry,  
Moscow)

SUBMITTED: July 17, 1957  
Card 2/2

80322

SOV/81-59-7-23715

12.8300

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 295 (USSR)

AUTHORS: Rozenfel'd, I.L., Marshakov, I.K.

TITLE: Corrosion of Metals in Narrow Gaps and Slits in the Presence of Corrosion Inhibitors

PERIODICAL: Sb. Kom-t po korrozii i zashchite metallov Vses. sov. nauchno-tekhn. o-v, 1957, Nr 2, pp 59 - 81

ABSTRACT: Methods were described for investigating the corrosion (C) of metals in narrow gaps (G) which make it possible to study the corrosion behavior of metals in G of various magnitude and in the case of arbitrary ratios of the surfaces of metal in G and in the electrolyte mass. Electrolyte of 0.03 g/l NaCl + 0.07 g/l  $\text{Na}_2\text{SO}_4$  was taken as initial medium, to which various corrosion inhibitors (CI) were added. The test results have shown that the C rate of Fe in narrow G is lower than the C rate of Fe surrounded by the mass of the electrolyte. This is explained by the inhibition of the cathode process as a result of the difficult access of  $\text{O}_2$ .  
With a decrease of the G width the limit diffusion current decreases

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SOV/81-59-7-23715

# Corrosion of Metals in Narrow Gaps and Slits in the Presence of Corrosion Inhibitors

and in G of 0.05 - 0.35 mm it has approximately the constant value of  $2.0 \text{ a/cm}^2$ . In the presence of a contact with the metal in the mass of the electrolyte, the C rate of Fe in G does not change with the G width. This is explained by the fact that the couples of differential aeration "metal in G-metal in the mass" are little efficient due to the high resistance of the medium. In the presence of CI it was established that  $\text{NaNO}_2$ ,  $\text{K}_2\text{Cr}_2\text{O}_7$ ,  $\text{Na}_2\text{HPO}_4$  cause a strong local C of the metal in G, although in the mass even small additions of these CI suppress the corrosion process completely. An increase in the  $\text{NaNO}_2$  concentration leads to the reduction of the corrosion damages of Fe in G and in the case of a concentration of 2.0 g/l  $\text{NaNO}_2$  C in G can be completely suppressed. The same results are observed in the case of  $\text{K}_2\text{Cr}_2\text{O}_7$  and  $\text{Na}_2\text{HPO}_4$ .  $\text{ZnSO}_4$  does not cause C but is little effective. A temperature increase affects C of Fe in G in a double way: 1) at raised temperatures a higher concentration of CI is needed; 2) with the temperature increase the rate of CI diffusion into G rises (the first factor prevails). The whole anode current in a metal in G of 0.05-0.35 mm is concentrated on the surface of the sample located not deeper than 5 mm from

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SOV/81-59-7-23715

Corrosion of Metals in Narrow Gaps and Slits in the Presence of Corrosion Inhibitors

the beginning of G. A real polarization diagram of the corrosion macrocell Fe in G of 0.15 - Fe in the mass of the electrolyte in the case of equal surfaces was obtained. As a result of the work carried out an explanation of the mechanism of C of metals in narrow G is given. 44

R. Salem

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24654

S/076/61/035/006/006/013  
B127/B203

18.8300

AUTHORS: Rozenfel'd, I. K. and Marshakov, I. K.

TITLE: Mechanism of selective linear corrosion

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 6, 1961, 1265-1269

TEXT: The object of the present paper was a study of corrosion at the boundary metal-dielectric. The authors used Armco iron, and showed its corrosion in the presence of HCl or  $H_2SO_4$ . Corrosion was most distinct in 0.2N  $H_2SO_4$ . Besides paraffin, the following substances were used as dielectrics: colophony, bitumen, organic glass, polystyrene, polymerized 55-2 (BF-2) glue, and Bakelite varnish (Fig. 1). No effect of the character of the dielectric on corrosion was observed. Linear corrosion was also observed at the contact point of two homogeneous metals. Weak corrosion was even observed with electrolytes free from  $O_2$ . The depth of corrosion increases with the metal surface outside of the paraffin drop. Thus, the free metal parts exert an influence on the covered parts. In

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S/076/61/035/006/006/013  
B127/B203

# Mechanism of selective linear corrosion

the narrow interspace at the edge of the drop, the acid concentration is reduced due to interaction with the metal. The increase in pH leads to a derefinement of the steady metal potential and to an acceleration of the anodic metal ionization. The change in acid concentration on the various metal parts leads to the formation of concentration elements. The anodic processes took place at the narrow edge on the drop, the cathodic processes at a greater distance, on the metal. At sufficiently high  $H^+$  concentration, free  $H_2$  is formed by discharge. This produces a cathodic process causing corrosion in the absence of  $O_2$ . A clear demonstration is given by the following arrangement: Two Fe electrodes are taken, one of which forms a 0.3 mm wide margin between metal and polymer. An emf of 80-100 mv and 500  $\mu a$  is formed. The metal in the slit acts as anode. The pH dependence is illustrated by the following arrangement: Two Fe electrodes are put in an H-shaped vessel with glass diaphragm. A milliammeter is connected. Both wings are filled with 0.2  $NH_4SO_4$ . In one wing, the acid is titrated with 1N NaOH + 0.2N  $Na_2SO_4$ . In the other one, the same quantity of acid was added to prevent a flow of the electrolyte through

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B127/B203

# Mechanism of selective linear corrosion

the diaphragm. In one wing, the pH increased steadily, in the other one, it remained constant. Only at a very strong basic pH, the metal in the acid solution can act as anode since Fe is passivated by strongly alkaline electrolytes and its potential shifts to the positive range. A similar change of pH takes place in the narrow space between metal and dielectric. The products of the anodic reaction of the corrosion element are subjected to hydrolysis, and acidify the electrolyte strongly. Finally, an equilibrium of pH 2.5-3.5 is established. Another picture results if the two electrodes are short-circuited. Corrosion of the electrode in the neutral electrolyte increases strongly. Due to the neutral environment, it becomes anodic. The potential is on a positive level. The corrosion rate of the electrode in neutral medium is increased by the 7-fold. The corrosion current is 200  $\mu$ a. If the inner and outer resistance of the element is reduced to a minimum, the current rises to the 18-fold and reaches 3.5 ma. If a drop of the dielectric is applied to iron, or if an interspace is constructed, the ohmic resistance is low, the concentration elements are very efficient, and, as a consequence, linear selective corrosion is very strong. M. K. Tikhonov (Zh. prikl. khimii, 12, 518, 1939) and V. A. Kistiyakovskiy (Korroziya

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Mechanism of selective linear corrosion

S/076/61/035/006/006/013  
B127/B203

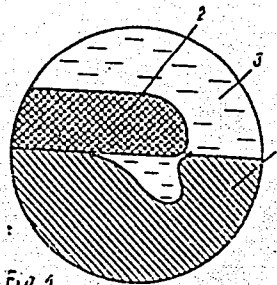
zheleza v kontakte s granitse dvukh faz; Tr. Iun'skoy sessii AN SSSR, 9-18, Izd-vo AN SSSR, 1938) are mentioned. There are 4 figures, 1 table, and 10 references: 8 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: Culloch M., J. Amer. Soc., 47, 1940, 1925.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AS USSR). Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

SUBMITTED: September 18, 1959

Fig. 1: Corrosion of iron in contact with a dielectric.

Legend: (1) metal, (2) paraffin, (3) acid.



Card 4/4

Agreement, I.

POTEKHIN, L.; ROZENFEL'D, I.; ITIN, N.; SOKOL'SKIY, N.; KUDRYASHOV, R., redaktor; FILIPPOVA, E., redaktor; DENISOVA, O., tekhnicheskiiy redaktor

[Planning expenditures for maintaining educational and public health institutes] Planirovanie raskhodov na soderzhanie uchrezhdenii prosveshcheniia i sdravookhraneniia. Moskva, Gosfinizdat, 1955. 215 p. (MLRA 9:2)

(Education--Finance) (Public health--Finance)

GOLUBEV, Andrey Iovich; ROZENFEL'D, I.L., doktor khim. nauk, otv. red.;  
BANKVITSER, A.L., red. izd-va; ROMANOV, G.N., tekhn. red.

[Anodic oxidation of aluminum alloys] Anodnoe okislenie alumi-  
nievykh splavov. Moskva, Izd-vo Akad. nauk SSSR, 1961. 198 p.  
(MIRA 14:7)

(Aluminum alloys) (Oxidation)

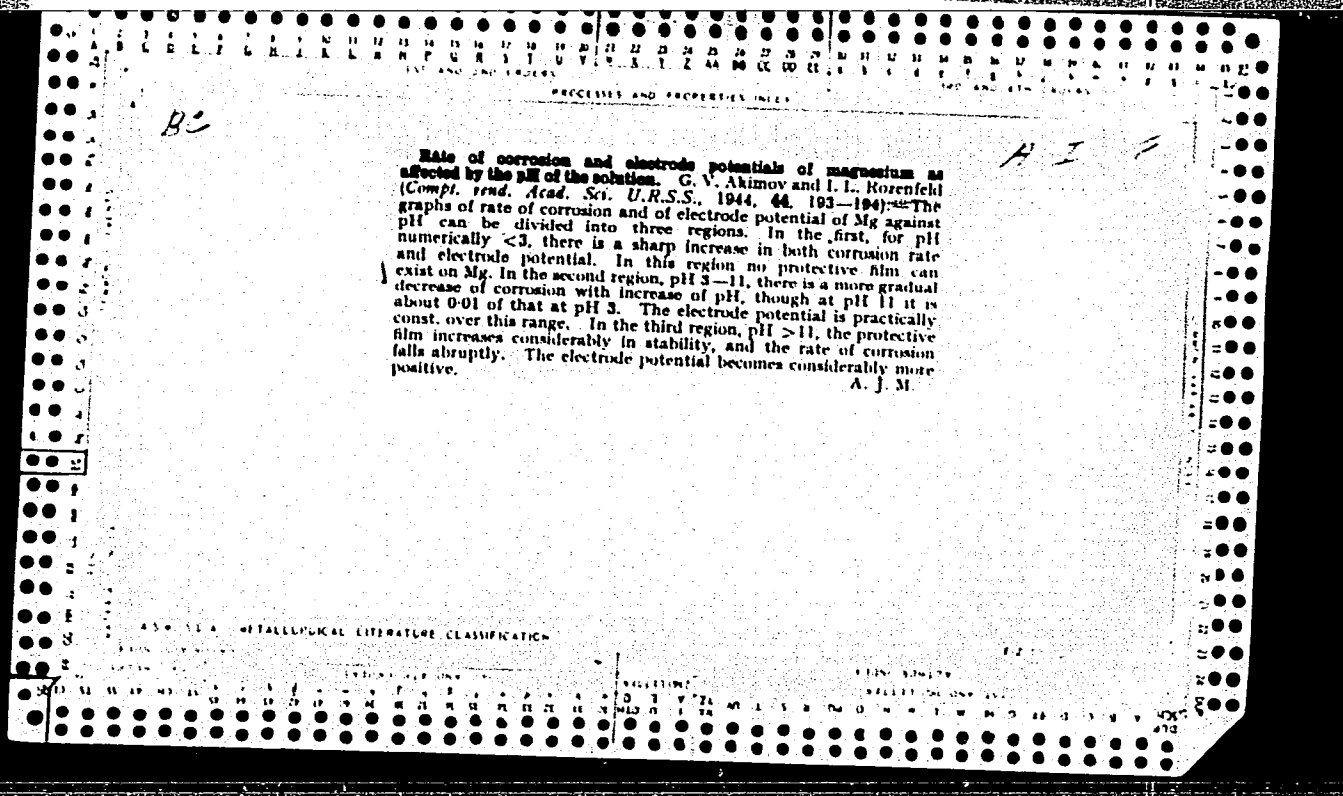
ROZENFEL'D, Il'ya Isayevich

[Principles and method in the planning of the public health system]  
Osnovy i metodika planirovaniia zdravookhraneniia; posobie dlia  
zaochnogo obucheniia. Moskva, 1959. 39 p. (MIRA 14:7)  
(PUBLIC HEALTH—STUDY AND TEACHING)



<p>CA</p> <p>4</p> <p>Influence of the pH of a solution on the corrosion and electrode potential of copper. G. V. Akimov and I. L. Rosenfeld. <i>J. Phys. Chem. (U. S. S. R.)</i> 14, 1489-91 (1910).—In aq. solns. of varied pH (HCl and NaOH, with and without 0.01 N NaCl) the electrode potential of Cu is displaced toward negative values with decrease of pH between 3 and 0. This can be explained by (1) high concn. of Cl ion, (2) destruction of the protective film of <math>\text{Cu}_2\text{O}</math> by Cl ion, and (3) the possible formation of simple and complex compds., the latter causing also considerable corrosion of the Cu. In the range pH 3-10 Cu has a more pos. electrode potential and undergoes insignificant corrosion, owing to the stability of the protective film and the formation of electrodes of the second kind. In the range pH 10-14 the potential is again displaced toward negative values, and corrosion increased, as the result of soln. of the protective film with formation of the cuprites <math>\text{Na}_2\text{CuO}_2</math> and <math>\text{NaHCuO}_2</math>. The max. of the potential-pH curve does not coincide with that of corrosion-pH curve. B. C. P. A.</p> <p>Lab. of Corrosion &amp; Electrochemistry, Min. of Non-Ferrous Metals and Gold</p> <p>ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>140000 *A</p> <p>100000 *A</p> <p>100000 *A</p>													<p>100000 *A</p> <p>100000 *A</p> <p>100000 *A</p>												

PROCESS AND PROPERTIES INDEX																									
1ST AND 2ND ORDERS													3RD AND 4TH ORDERS												
<p>Application of the absorption method in the study of copper corrosion. G. V. Akimov and I. L. Koznfeld. <i>Compt. rend. acad. sci. U. R. S. S.</i> 26, 450-2 (1940) (in English).—By measuring the decrease in pressure produced by O uptake, the rate of corrosion of Cu was detd. in HCl and NaOH solns. of various concns. The rate increases rapidly below pH 4 and slowly above pH 12; between these 2 values it is approx. const. and very slight. There is no induction period in NaOH solns. but in HCl there is one of approx. 50 hrs.; this may be due to acceleration of the reaction by the corrosion products. A protective coating forms in alk. soln. and the corrosion practically ceases after 80-100 hrs. The absorption method gives somewhat lower corrosion rates than are obtained by use of the gravimetric method. T. H. Dunkelberger.</p>																									
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>FROM: 1-10-1944</p>																									
<p>CLASSIFICATION</p>																									
<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>																									



1ST AND 2ND ORDERS		3RD AND 4TH ORDERS	
PROCESSING AND PROPERTY INDEX			
<p>ca</p> <p>Mechanism of the anticorrosion protection of iron by chromates. Effect of potassium dichromate in water on the electrode potential of iron. I. L. Rozenfel'd and G. V. Akinov. <i>Doklady Akad. Nauk S.S.S.R.</i> 67, (1967-9) (1949).—The change with time of the potentials <math>E</math> of Fe in <math>H_2O</math> was detd. in the absence and in the presence of <math>K_2Cr_2O_7</math>, at 13 concns. from 0.025 to 16.0 g./l. The initial <math>E</math> is shifted to more pos. values, more strongly than in the presence of other inhibitors; it attains 500-550 mv. With time, the difference of <math>E</math> without and with <math>K_2Cr_2O_7</math> increases, attaining 1.077 v. after 12 hrs. This would indicate that the effect of <math>K_2Cr_2O_7</math> consists in an inhibition of the anode process. On the other hand, the fact that, both in pure <math>H_2O</math> and in the presence of medium amts. of <math>K_2Cr_2O_7</math>, <math>E</math> becomes increasingly less noble with time, indicates that ionization of O on Fe becomes increasingly difficult with time, consequently, <math>K_2Cr_2O_7</math> does not act as cathodic depolarizer under these conditions. Amts. of from 0.025 to 1.000 g./l. <math>K_2Cr_2O_7</math>, although they raise the initial <math>E</math> to more pos. values, not only do not cause <math>E</math> to become more noble with time, but render it less noble. Inasmuch as this effect is not accompanied by an acceleration of the corrosion, it must be attributed to an increase of the overvoltage of the ionization of O on Fe, and, consequently, an inhibition of the cathodic process. N. T.</p>			
ASAC-SEA METALLURGICAL LITERATURE CLASSIFICATION			
STANDARD #1		STANDARD #2	
STANDARD #3		STANDARD #4	
STANDARD #5		STANDARD #6	
STANDARD #7		STANDARD #8	
STANDARD #9		STANDARD #10	
STANDARD #11		STANDARD #12	
STANDARD #13		STANDARD #14	
STANDARD #15		STANDARD #16	
STANDARD #17		STANDARD #18	
STANDARD #19		STANDARD #20	
STANDARD #21		STANDARD #22	
STANDARD #23		STANDARD #24	
STANDARD #25		STANDARD #26	
STANDARD #27		STANDARD #28	
STANDARD #29		STANDARD #30	
STANDARD #31		STANDARD #32	
STANDARD #33		STANDARD #34	
STANDARD #35		STANDARD #36	
STANDARD #37		STANDARD #38	
STANDARD #39		STANDARD #40	
STANDARD #41		STANDARD #42	
STANDARD #43		STANDARD #44	
STANDARD #45		STANDARD #46	
STANDARD #47		STANDARD #48	
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STANDARD #57		STANDARD #58	
STANDARD #59		STANDARD #60	
STANDARD #61		STANDARD #62	
STANDARD #63		STANDARD #64	
STANDARD #65		STANDARD #66	
STANDARD #67		STANDARD #68	
STANDARD #69		STANDARD #70	
STANDARD #71		STANDARD #72	
STANDARD #73		STANDARD #74	
STANDARD #75		STANDARD #76	
STANDARD #77		STANDARD #78	
STANDARD #79		STANDARD #80	
STANDARD #81		STANDARD #82	
STANDARD #83		STANDARD #84	
STANDARD #85		STANDARD #86	
STANDARD #87		STANDARD #88	
STANDARD #89		STANDARD #90	
STANDARD #91		STANDARD #92	
STANDARD #93		STANDARD #94	
STANDARD #95		STANDARD #96	
STANDARD #97		STANDARD #98	
STANDARD #99		STANDARD #100	

ROZENFEL'D, I. L.

PA 66/49T20

USSR/Chemistry - Corrosion  
Chromates

Aug 49

"Mechanism of Protecting Iron from Corrosion in Water by Means of Chromates. Effect of  $K_2Cr_2O_7$  in Water on the Rate of the Electrode Processes," I. L. Rozenfel'd, Akimov, Corr Mem, Acad Sci USSR, Inst of Phys Chem, Acad Sci USSR, 3 3/4 pp

"Dokl Ak Nauk SSSR" Vol LXVII, No 5

№. 879-82

Graphs the action of  $K_2Cr_2O_7$  on the cathode and anode polarization of iron, giving the potentials in millivolts in relation to the normal hydrogen electrode. (The weakly alkaline electrolyte (pH = 10.45) contained NaCl,  $Na_2SO_4$ ,  $Na_2CO_3$ , and

66/49T20

USSR/Chemistry - Corrosion

Aug 49

(Cont'd)

$NaHCO_3$ ) Experiments showed that  $K_2Cr_2O_7$  retards both electrode processes, and predominantly the anode process because the chromate ions are adsorbed to form a film on the surface of the iron. Submitted 7 Jun 49.

66/49T20

ROZENFELD, I. L.

"Corrosion Inhibitor in Neutral Media." Sub 5 May 51, Inst of  
Physical Chemistry, Acad Sci USSR.

Dissertations presented for science and engineering degrees in  
Moscow during 1951.

SO: Sum. No. 480, 9 May 55

Irreversible electrode potentials of iron in electrolytes containing corrosion inhibitors. I. L. Rozenfel'd (Inst. Phys. Chem., Acad. Sci. U.S.S.R., Moscow). *Izv. Akad. Nauk S.S.R., Otdel Khim. Nauk* 1951, 674-7. — Measured over 12 hrs, the potential  $E$  of Fe in a soln. of NaCl 23, Na<sub>2</sub>SO<sub>4</sub> 67.5, Na<sub>2</sub>CO<sub>3</sub> 101.3 mg/l, becomes increasingly neg. and shows 2 arrests, one at about -120 mv. (on the H scale), the other, at the end of the 12 hrs., at about -130 mv. Along the 1st portion of the curve,  $E$  is detd. by the rate of cathodic reduction of O<sub>2</sub> which becomes progressively depleted around the electrode and causes strong concn. polarization. Along the 2nd branch,  $E$  is detd. by the anodic process  $\text{Fe} \rightarrow \text{Fe}^{++} + 2e^-$ . In the presence of NaNO<sub>3</sub>,  $E$  becomes increasingly more pos. with time, attaining about +250 mv. after 12 hrs., i.e. NaNO<sub>3</sub> can raise  $E$  of Fe by 700-750 mv. NaNO<sub>3</sub> thus is shown to be an anodic inhibitor. In contrast, with ZnSO<sub>4</sub>,  $E$  becomes increasingly neg. with time, faster than without the inhibitor. Consequently, ZnSO<sub>4</sub> has no effect on the anodic process, but inhibits the cathodic reduction of O<sub>2</sub>, probably through formation of insol. Zn(OH)<sub>2</sub>.

N. Thon

~~ROZENFELD, I.L.~~; RUBINSHTEYN, F.I.; YAKUBOVICH, S.V.; SHERMAN, R.S.;  
UVAROV, A.V.

Studying the protective effect of oil paints modified with  
chromic acid guanidine. Lakokras.mat.i ikh prim. no.6:11-15  
'62. (MIRA 16:1)  
(Protective coatings) (Guanidine)



ROZENFEL'D, I. L.; DANILOV, I. S.

Mechanism of the pitting corrosion of stainless steels. Dokl.  
AN SSSR 147 no.6:1417-1419 D '62. (MIRA 16:1)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom  
A. N. Frumkinym.

(Steel, Stainless—Corrosion)

Corrosion and Anti-Corrosives

Optical method of studying kinetics of the development of the corrosion damage.  
Trudy Inst.fiz.khim., no. 3, 1951.

Monthly List of Russian Accessions, Library of Congress, May 1952. UNCLASSIFIED.

USSR/Chemistry - Corrosion

Jun 51

"Dependence of the Electrode Potential of Iron on Hydrogen Ion Concentration," I. L. Rozenfel'd, Inst of Phys Chem, Acad Sci USSR, Moscow

"Zhur Fiz Khim" Vol XXV, No 6, pp 732-736

Investigation showed that Fe electrode potential depends on H ion concn only over very small range of pH scale. Plots curves for and discusses characteristics of dependence. Review of polarization diagram of corrosion process and comparison of effective potential of Fe with potential of possible cathode reactions helps explain complex type of

206T16

USSR/Chemistry - Corrosion (Contd)

Jun 51

dependence. Fe electrode potential in solns of different pH is not dependent on rate of corrosion thus does not characterize electrochem activity of electrode in a definite manner.

206T16

ROZENFEL'D, I. L.

ROZENFELD, I. L.

Mechanism for protecting iron from corrosion with sodium nitrate. I. L. Rozenfel'd. *Doklady Akad. Nauk S.S.S.R.* 78, 52 (1962). The action of  $\text{NaNO}_3$  on Fe leads to the conclusion that the mechanism of its inhibiting action is due to the retardation of the anode process. A small addn. of  $\text{NaNO}_3$  to the electrolyte shifts the potential of anodic soln. to higher pos. values. Effective protection with this type of inhibitor can only be attained when the anode process is completely suppressed.  
J. Rovtar Leach

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USSR/chemistry - Corrosion

21 Jul 51

"Mechanism of Corrosion Protection of Iron Apparatus by Inhibitors and Cathodic Protectors," I. L. Rozenfel'd, Div of Metal Corrosion, Inst of Phys Chem, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXIX, No 3, pp 471-474

Describes method of detg relation between ohmic and polarization resistance for various portions of flat model (Fe partially plated with Zn). Exptl data refer to cathodic inhibitors which check reduction of oxygen at iron surface. In the presence

21J722

of inhibitors relative participation of cathodic process in corrosion is doubled when combination method of corrosion-proofing is used. When distance between iron and protector is increased, share of cathodic process drops and then remains const, while that of anodic process is unaffected. Effect of ohmic resistance is much smaller on a plane model than a spatially divided one.

21J722

ROZENFEL'D, I. L.

PHASE I

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 591 - I

BOOK

Call No.: TA462.R6

Author: ROZENFEL'D, I. L., Doc. of Chem. Sci.

Full Title: CORROSION INHIBITORS IN NEUTRAL MEDIA

Transliterated Title: Zamedliteli korrozii v neytral'nykh sredakh

PUBLISHING DATA

Originating Agency: Academy of Sciences, USSR. Institute of Physical Chemistry

Publishing House: Academy of Sciences, USSR

Date: 1953

No. pp.: 248

No. of copies: 3,000

Editorial Staff

Editor: Akimov, G. V., Corr. Mem., Academy of Sciences, USSR

PURPOSE: This book is intended for research and factory workers, dealing with problems of metal protection against corrosion.

TEXT DATA

Coverage: This monograph deals with the theory of corrosion protection of metals by means of inhibitors and discusses problems connected with their practical application. Special attention has been given to the study of the kinetics of electrode processes, based on the theory of multi-electrode systems presented by G. V. Akimov. This theory has been applied to solve problems connected with the protection of bimetallic and polymetallic systems and a combined method of corrosion protection of apparatus and steel construction by means

1/2

Zamedliteli korrosii v neytral'nykh sredakh

AID 591 - I

of inhibitors and protectors is presented. The author bases this study on his own experimental research work. The study includes a wide field of different pH electrolytes around the neutral point (pH between 4 and 11). The book consists of three parts: theoretical, experimental and practical. The theoretical part presents the basic ideas, which have been developed by the author in the theory of metal corrosion protection by means of inhibitors. In the experimental part are analysed the results obtained with 10 inhibitors and 13 technically important metals. The third part discusses the practical applications of corrosion inhibitors. Methods are suggested for proper corrosion protection and many examples are given. The main attention is centered on the corrosion protection of iron and steel. This book claims to be the first monograph devoted exclusively to this problem. The work of many Soviet scientists is mentioned and references are made to their publications listed in the literature at the end of the book. Many tables, diagrams and photos supplement the text.

No. of References: Russian 103, 1907-1952, non-Russian 40, 1903-1950.  
Facilities: The names of many Russian scientists and research workers are mentioned.

2/2

AKIMOV, G.V., redaktor; ROZENFEL'D, I.L., doktor khimicheskikh nauk.

[Corrosion of metals; electrochemical protection of underground and marine structures from corrosion; collection of translated articles from foreign periodical literature] Korroziia metallov; elektrokhimicheskaya zashchita podzemnykh i morskikh sooruzhenii ot korrozii. Sbornik perevodov statei iz inostrannoi periodicheskoi literatury. Pod red. G.V.Akimova i I.L.Rozenfel'da. Moskva, Izd-vo inostrannoi lit-ry, 1953. 486 p. (MLRA 7:2)

1. Chlen-korrespondent Akademii nauk SSSR (for Akimov).  
(Corrosion and anticorrosives)



(2) 3

New principle for investigating atmospheric corrosion of metals. I. L. Rozenfel'd and T. I. Pavlutskaia. *Doklady Akad. Nauk S.S.S.R.* 91, 315-17 (1953).—Exptl. data were obtained on the effect of the thickness of the layer of electrolyte on cathodic and anodic polarization. These data were significant because, although atm. corrosion is electrochem., the usual measurements in bulk solns. are not applicable in view of the thin layer of electrolyte present in atm. corrosion. A special app. was used to obtain curves of cathodic polarization of Cu with thin layers of 0.01N NaCl and also in the bulk soln. At a current d. of 250 microamp./sq. cm. the potentials relative to a normal H electrode had dropped from initial values of about 150 mV. to -1050 for the bulk soln., -1000 for a 165  $\mu$  layer, -800 for 100  $\mu$ , and -700 for 70  $\mu$ . Similar curves of anodic polarization had increased at 200 microamp./sq. cm. to 350 mV. for the bulk soln., 400 for 165  $\mu$ , 650 for 100  $\mu$ , and 1100 for 70  $\mu$ . Results for some other metals were just the opposite of these, and it was necessary to consider other explanations of this behavior besides the case of diffusion of O through the layer.

A. G. City

Rozenfel'd, I. L.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 36/47

Authors : Rozenfel'd, I. L., and Zhigalova, K. A.

Title : Rate of oxygen depolarization during atmospheric corrosion of metals

Periodical : Dok. AN SSSR 99/1, 137-140, Nov 1, 1954

Abstract : Laws governing the increase in rate of oxygen depolarization, as result of convectional transfer of oxygen, were established. Numerous cases of intensified corrosion of metals along the water-line, in zones of periodic wetting and drying and also in conditions of periodic condensation and evaporation of moisture, are discussed. The effect of nonuniform water evaporation at various points of a surface on temperature drops, which lead to change in surface tension of water and stirring of the electrolyte, is explained. Drop in temperature along the vertical and increase in electrolyte density in the upper layer may cause a displacement and thus intensify the access of oxygen. Six references: 2-English; 3-USSR and 1-USA (1919-1953). Graphs.

Institution : Academy of Sciences USSR, Institute of Physical Chemistry

Presented by: Academician A. N. Frumkin, June 10, 1954

ROZENFEL'D, I.L., doktor khimicheskikh nauk, redaktor; BELYAYEVA, Z.F.,  
redaktor; IL'IN, B.M., tekhnicheskii redaktor; BELEVA, M.A.,  
tekhnicheskii redaktor  
[The corrosion of metals; a collection of articles translated from  
foreign periodicals] Korroziia metallov; sbornik perevodov statei  
iz inostrannoi periodicheskoi literatury. Pod red. I.L.Rozenfel'da.  
Moskva, Izd-vo inostrannoi lit-ry. Vol.2. [New corrosion-resistant  
metals] Novye korroziionnostoikiye metallicheskie materialy. 1955.  
171 p. [Microfilm] (MLRA 9:7)  
(Corrosion and anticorrosives) (Metals)

*ROZENFELD, I. L.*

✓ Electrochemical methods of investigation of atmospheric corrosion of metals. I. L. Rozenfeld and T. T. Pavlyushkova.

Trudy Inst. Fiz. Khim., Akad. Nauk S.S.S.R.  
No. 3, Issledovan. Korrozii Metal. No. 4, 198-215 (1965).

cf. C.A. 49, 13868d. — The method of investigation consisted of detg. polarization curves on metal electrodes covered with thin films of electrolyte whose thickness was maintained const. during the expts. The app. is described in detail. Potentials were measured on Cu, Fe, Al and Mg covered with thin films (70, 100, 150, and 330  $\mu$ ) of 0.01N and 0.1N solns. of NaCl or HCl. The rate of the cathode process, when detd. by diffusion of O, decreases with the thickness of the layer of electrolyte. When, however, the cathode process is detd. by regeneration of O the thickness of the layer has no effect. The anode overpotential increases when the thickness of the layer decreases. Consequently with concd. solns. of medium thickness (150 and higher) the corrosion rate under thin films of electrolyte can be equal to or greater than that of immersed samples because of the facilitation of the cathode process and the insufficient decrease of the anode process. With thin films (70 and lower) of weak solns. the corrosion rate may be lower than on immersion because of the increase of the anodic overpotential.

N. Goldowski

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*4E4j-1*

Kozanfeld, I. L.

5.

Effect of relative humidity of air on the rate of electrode processes occurring on copper under a thin layer of electrolyte. I. L. Rozenfeld and K. A. Zhigalova. *Trudy Akad. Nauk S.S.S.R. Ser. Khim. Nauk*, No. 5, Issledovan. Khim. Akad. Nauk S.S.S.R. (1955) -- Relative humidity affected the concn. and thickness of the diffusion layer which in turn controlled the rate of the cathode process. A decrease of the relative humidity of air led to an increase of the rate of supply of O to the metal surface because of evapn. of the film. O could either depolarize the cathode or passivate the anode. Cathode polarization of Cu under a layer 160  $\mu$  thick of 0.1N NaCl soln. was detd. for different relative humidities of the ambient air. Expts. showed that during the electrochem. process of corrosion, the effectiveness of the Cu cathode increased with a drop in the relative humidity of the air. This was due to the fact that while the probability of attack decreased for lower relative humidity, the rate of the process already begun was greater for lower relative humidity. Metals covered with a thin layer of electrolyte for the same period of time experienced stronger corrosion in atms. of lower humidity. It is explained the intense corrosion of metals when took place in relatively dry regions and the intense corrosion in

2  
Chem

Chem

Kizenfeld, I. L.

✓ Method for the Investigation of Contact Corrosion in Flowing Electrolytes at Elevated Temperatures. I. L. Rozenfel'd.

(Zavodskaya Laboratoriya, 1955, 21, (1), 60-62, [in Russian].)

A method is described by which the polarity of electrodes can be determined and the corrosion behaviour in still or flowing electrolytes of metal pairs evaluated quantitatively. The metals are in the form of tubes along which the electrolyte can be made to flow. For still and flowing 3% NaCl solution the greatest corrosion among steel-containing pairs is shown by carbon steel with brass and Cu, the least by the same non-ferrous metals with stainless steel. In contact with stainless steel, Al is corroded to a considerable extent.—S. K.

metal

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ROZENFEL'D, I.L.; PAVLUTSKAYA, T.I.

Electrochemical investigation of the atmospheric corrosion  
of metals. Zav. lab. 21 no. 4:437-442 '55 (MLRA 8:6)

1. Institut fizicheskoy khimii akademii nauk SSSR  
(Metals--Corrosion)(Electrochemical analysis)

Agente 48, I. h

MG

✓ Methods for the evaluation of the tendency of stainless steels to undergo intercrystalline corrosion. A symposium. Discussion of methods of determination of the tendency of stainless steels to undergo intercrystalline corrosion. I. A. Levin. *Zavodskaya Lab*; 21, 546-50 (1955).—A review, with 27 references. Foreign practice of control determinations of the tendency of stainless steels to undergo intercrystalline corrosion. A. V. Shreider. *Ibid.*: 551-5.—A review. Methods for the determination of the existence of intercrystalline corrosion in stainless-steel apparatus. I. L. Rozenfel'd, Z. A. Vrutsevich, and M. V. Rezanny. *Ibid.*: 557-9.—A flat surface of the app. is ground with an emery wheel and the grooves produced examd. under a magnification of 75-150 times. Only longitudinal grooves are seen in the absence of corrosion, but they are crisscrossed with cracks when there is intercryst. corrosion. W. M. S.

④



Rozentfeld, I. L.

14757\* Problem of Accelerating the Tendency of Stainless  
Austenitic Steels to Inter-crystalline Corrosion. K voprosu o  
vynavlennii sklonnosti k mezhkristallinnoi korrozii nerzha-  
velushchikh austenitnykh staeli. (Russian.) I. L. Rozentfeld,  
Z. A. Ventsvich, E. I. Titkova, and M. V. Beganskii. ~~Lavinskii~~  
Laboratoriia, v. 21, no. 8, Aug. 1955, p. 934-936.  
Comparison of sulfuric acid plus copper sulfate, and other com-  
binations, in one- and two-day tests. Micrographs. 6 ref.

Inst. Phys. Chem., AS USSR

ROZENFEL'D, I.L.; MARSHAKOV, I.K.

Methods for studying corrosion in gaps and openings. Zav.lab.21  
no.11:1346-1353 '55. (MIRA 9:2)

1.Institut fizicheskoy khimii Akademii nauk SSSR.  
(Corrosion and anticorrosives)



ROZENFEL'D, I. L., ZHIGALOVA, K. A.

Mechanism of oxygen transfer through thin layers of electrolytes.  
Dokl. AN SSSR 104 no.6:876-879 0 '55. (MLRA 9:3)

1. Institut fizicheskoy khimii Akademii nauk SSSR.  
(Oxidation, Electrolytic) (Corrosion and anticorrosives)

PALMOLOG, Ye.N., kandidat khimicheskikh nauk, redaktor; ROZENFEL'D, I.L., doktor khimicheskikh nauk, redaktor; TYUKINA, M.N., kandidat khimicheskikh nauk, redaktor; TOMASHOV, N.D., professor doktor khimicheskikh nauk, redaktor; SHCHIGOLEV, P.V., kandidat khimicheskikh nauk, redaktor; BABICH, L.V., redaktor izdatel'stva; MAKUNI, Ye.V., tekhredaktor

[Problems of corrosion and the protection of metals; proceedings of the conference] Problemy korrozii i zashchity metallov; trudy soveshchaniia. Moskva, Izd-vo Akademii nauk SSSR, 1956. 270 p. (MIRA 9:8)

1. Vsesoyuznoye soveshchaniye po korrozii i zashchite metallov. 5th, Moscow, 1954.

(Corrosion and anticorrosives)

ROZENFELD, I. L.

*Met* Effect of the temperature factor on the corrosion rate of  
metals in electrolytes V. V. Gerasimov, G. V. Akimov, and I. L. Rozenfeld  
Bull. Acad. Sci. U.S.S.R. Div. Chem. Sci. 1958 5: 11 Engl. translation See C.A. 50: 10087  
H. M. R.

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Rozenfeld, I. L.

✓ Effect of the temperature factor on the corrosion rate of metals in electrolytes. V. V. Gerasimov, G. V. Akimov, and I. L. Rozenfeld. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 12-15. —Temp. affects the corrosion rate in accordance with the effect it has on the controlling factor of the corrosion reaction. Expts. were performed on couples: Cu-Fe, Cu-Zn, Cu-Mg, and on a Zn alloy contg. 0.92% Fe. In 0.1N NaCl + 0.123N H<sub>2</sub>O<sub>2</sub>. When the cathode process is detd. by ionization of O<sub>2</sub>, the temp. effect is max. The effect is considerably smaller when corrosion is controlled by the rate of restoration of the oxidizing agent and by the rate of discharge of H ions. It is min. when the reaction is limited by the rate of supply of the oxidizing agent.

N. Goldowski

ROZENFELD, I. L.

✓ Effect of temperature on the magnitude of the diffusion current and on the depth of the diffusion layer. V. V. Gerasimov and I. L. Rozenfel'd. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 779-83. — The effect of temp. on the limiting diffusion current,  $I_p$ , and on the depth of the diffusion layer,  $\delta$ , was studied with a rotating Cu electrode in 0.005N  $\text{FeCl}_3$  + 0.1N  $\text{HCl}$  and on a Cu-amalgam rotating electrode in 1.0N  $\text{NaCl}$ . The rate of rotation in all cases was 1600 r.p.m. In the absence of stirring,  $I_p$  has a max. at 80°. For stirred solns.,  $\delta$  increases with temp., but in the absence of stirring it decreases. In solns. of 1.0N  $\text{NaCl}$  the O is reduced, partly to form  $\text{H}_2\text{O}_2$  and partly to form OH ions. I. Rozenfel'd

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ROZENFELD, I. L.

27 27 4  
Effectiveness of protectors of aluminum-zinc alloys. V. 4E3  
V. Gerasimov and I. L. Rozenfeld. *Izvest. Akad. Nauk*  
*S.S.S.R., Otdel. Khim. Nauk* 1956, 1050-2. -- Al-Zn alloys  
with an Al content of 91.30-4.37% and pure Al and Zn were  
investigated as to their electrode potentials, magnitude of the  
protective current, and anode polarization. The results  
showed that protectors of alloys contg. 30-70% Zn are  
more effective than protectors of pure Al or Zn or alloys  
contg. 0-50% or 70-100% Zn. J. Rovtar Leach.

for  
only

Rozenfel'd, I. L.

The Influence of Temperature on the Value of Diffusion Current and the Thickness of the Diffusion Layer. V. V.

Gerashimov and I. L. Rozenfel'd (*Izvest. Akad. Nauk S.S.S.R.*, 1950, [Khim.], (7), 770-783).—(In Russian). G. and R. investigated particularly the temp. effect in relation to the limiting diffusion current and the thickness of the diffusion layer on Cu, Fe and Cu amalgam in still and agitated soln. of NaCl and FeCl<sub>3</sub>. In still electrolytes with const. O. concentration limiting diffusion current increases. When the O concentration is changed as a result of reduced soln. temp., the limiting current reaches its max. at 80° C., after which it decreases. In agitated electrolytes the diffusion layer thickens with increase in temp.; in still electrolytes it decreases with temp. as a result of convection caused by agitating. On Fe and Cu in soln. of *N*-NaCl, O is reduced partly to H<sub>2</sub>O<sub>2</sub> and partly to OH ions. 13 ref.—Z. N. P.

ROZENFELD, I. L.

✓ An Investigation of the Efficiency of Protectors Made from  
Aluminum-Zinc Alloys in Cathodic Protection.  
V. V. Gerasimov and I. L. Rozenfeld (*Izvest. Akad. Nauk  
S.S.S.R.*, 1958, [Khim.], (8), 1056-1062). [In Russian].  
Al, Zn, and compn. from the middle portion of the Al-Zn  
alloy system were tested for stationary electrode potentials,  
protective current (on 1 cm<sup>2</sup> with 13:1 ratio of protected  
surface to protector surface), anode-polarization capacity,  
and working stability. All alloys contained more than the  
usual (for primary materials) proportions of Fe, Si, and Cu.  
The soln. used was 1.5% NaCl. Protectors made from alloys  
contg. 30-70% Al are more efficient than those of pure Al and  
Zn, or alloys with 0-30 and 70-100% Zn. — Z. N. P.

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LUKONINA, T.I.; ZHIGALOVA, K.A.; ROZENFELD, I.L.

New method for investigating the atmospheric corrosion of  
metals. Zav. lab. 22 no.12:1463-1467 '56. (MLRA 10:2)

1. Institut fizicheskoy khimii Akademii nauk SSSR.  
(Corrosion and anticorrosives)

Distr: 4E4j

†The Relationship Between Polarizational and Ohmic Resistances  
in Local Cells Working under Thin Layers of Electrolytes. L. L.  
Rozenfel'd and T. I. Pavlutskaia (Zhur. Fiz. Khim., 1956, 30, (6),  
1427-1428).—[In Russian]. For electrodes working in different  
electrolytes ohmic resistance is very small (4-6% increase), but  
anodic polarization-resistance shows 4-5-26% increase, and  
cathodic 70-92%. With decrease in thickness of the electrolyte  
layer, :: can be expected that anodic polarization would increase,

but the process would carry on with the anodic-cathodic and not  
anodic-ohmic control. —A. W.

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ROZENFELD, I. L.

Distr: 4E2c

<sup>18</sup>  
Electrochemical Protection of Duralumin. V. V. Gerasimov and  
I. L. Rozenfeld (Zhur. Fiz. Khim., 1956, 30, (8), 1816-1820). — In  
Russian. G. and R. studied the influence of the protective current  
intensity on the rate and the depth of penetration of corrosion of  
Duralumin, Al plated to a thickness of 2-4  $\mu$ , in still and agitated  
1-5% NaCl soln. With cathodic polarization at a c.d. of 2-3  $\mu$ amp./  
cm.<sup>2</sup> the corrosion rate of Duralumin increases 1.5 times and the  
depth of penetration decreases 5-6 times. In agitated soln. the  
limiting diffusional current depends on the conditions of ioniza-  
tion of O. Proper electrochem. protection of Duralumin is  
possible only under controlled conditions. The p.d. should  
be -0.6 to -0.8 V. (versus the H electrode); if the p.d. in-  
creases to 1.0 V. overprotection is possible, and then the loss  
through corrosion increases 6 times, with the depth of penetration  
increasing only 2.5 times. — A. W.

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4E20

✓ Metal corrosion mechanism in narrow fissures and crevices. I. The mechanism of "crevice corrosion" of iron in sodium chloride solutions. I. L. Rosenfeld and I. K. Marshakov (Phys. Chem. Inst., Acad. Sci. U.S.S.R., Moscow). *Zhur. Fiz. Khim.* 30, 2724-33 (1956); *cf. C.A.* 50, 7705g. The corrosive action of water, 0.5N NaCl and a soln. contg. 30 mg. NaCl and 70 mg./l.  $\text{Na}_2\text{SO}_4$  in narrow fissures in iron was studied when the whole exposed iron surface was in the crevice, and when only part of the iron surface was exposed to the liquid in the crevice and the rest was freely laved by the electrolyte soln. The corrosion in the second case was 2-3 times more rapid than in the first. The curves of the Fe anodic polarization are displaced towards the neg. side by reducing the fissure width. The cathode process in the narrow crevices in the iron becomes inhibited several times more than the anode-process acceleration in them.

W. M. Sternberg

fra RLL  
amb

ROZENFEL'D, I.L.; LUKONINA, T.I.

A new cathodic depolarizer. Dokl. AN SSSR 111 no.1:136-139 N-D '56.

1. Institut fizicheskoy khimii Akademii nauk SSSR. Predstavleno  
akademikom A.N. Frumkinym.  
(Sulfur dioxide) (Metals--Corrosion)



AUTHORS: Gerasimov, V. V., and Rozenfel'd, I. L. 62-1-3/21

TITLE: Thermogalvanic Corrosion (Thermogal'vanicheskaya korroziya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1957, No. 1, pp. 29-31 (U.S.S.R.)

ABSTRACT: Thermogalvanic corrosion appears to be the result of macro-cells originating when different parts of one and the same metal, submerged in an electrolyte, have a different temperature and the part of the metal acting as anode in such macrocell is subjected to destruction. The authors investigated thermogalvanic corrosion (currents of thermogalvanic cells) of Fe, Cu, Ni and Pb in neutral, alkaline and acid solutions at different temperature drops and surface ratios of cold and hot electrodes and during the mixing of the electrolyte. Experiments showed that in all cases the role of the cell anode is assumed by the electrode which is oriented at a much higher temperature. It was found that, in an alkaline medium, the thermogalvanic current

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# Thermogalvanic Corrosion

62-1-3/21

of the copper cell increases during the increase in cathode area and anode area as well; the corrosion in this case follows with mixed control. In neutral and acid media the cell current, at an increase in the area of the cold electrode (cathode), increases to a greater degree than during the increase in the anode area. The corrosion in these media follows with cathode control. In an acid medium, where the rate of the cathodic process due to corrosion and hydrogen depolarization is quite high, the thermogalvanic corrosion, with a rare exception, is greater than in neutral and alkaline media. Mixing of the electrolyte in the cathode space sharply increases the rate of corrosion in the thermogalvanic cells where the rate of oxygen diffusion appears to be the controlling factor. In cases where the limiting factor is the ionization of the oxygen or oxygen depolarization with possible discharge of hydrogen ions, the mixing of the electrolyte in the cathode space, has a lesser effect on the corrosion process.

Tables, graph. There are 4 Non-slavic references.

Card 2/3

*Instr. Phys. Chem AS USSR*

*Submitted June 1956*

Translation from Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 121 (USSR) SOV/137-58-12-24850

AUTHORS Marshakov, I. K. ; Rozenfel'd, I. L.

TITLE The Process of Corrosion of Metals in Gaps and Cracks (Mekhanizm korrozii metallov v usloviyakh zazorov i shcheley)

PERIODICAL Sb. tr. Voronezhsk. otd. Vses. khim. o-va im. D. I. Mendeleyeva, 1957, Nr 1, pp 117-120

ABSTRACT Bibliographic entry

Card 1/1

SOV/137-58-9-19517

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 198 (USSR)

AUTHORS: Rozenfel'd, I.L., Pavlutsкая, T.I.

TITLE: Investigation of the Electrochemical Behavior of a Metal Under Thin Layers of Electrolyte (Issledovaniye elektrokhimicheskogo povedeniya metalla pod tonkimi slojami elektrolita)

PERIODICAL: Tr. In-ta fiz. khimii, AN SSSR, 1957, Nr 6, pp 56-68

ABSTRACT: The method of the study of the electrochemical corrosion of metals under thin layers of electrolytes by means of the construction of polarization curves is described. The results obtained for Fe and Cu are adduced. The investigation of the corrosion of metals was conducted in a hermetically sealed chamber within which a 98% relative humidity was sustained with the aid of a saturated aqueous solution of  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ . The film of the electrolyte was applied on the surface of the metal, starting with a known weight and volume of drops released from a micropipette and of the area of the specimen. Control of the thickness of the film can be achieved directly in the chamber. Cu- and Fe-polarization curves were drawn at  $25^\circ\text{C}$  for various thicknesses of the film of 0.1N solution of

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SOV/137-58-9-19517

Investigation of the Electrochemical Behavior of a Metal (cont.)

NaCl<sub>1</sub> (from 70 to 330  $\mu$  ) and upon complete immersion in the solution. It is shown that upon the decrease in the thickness of the film of electrolyte the cathode polarization of Cu and Fe decreases regularly as a result of a greater access of O<sub>2</sub> to the surface of the metal and the greater facility of the process of the ionization of O<sub>2</sub>. At a film thickness of 300-350  $\mu$  the difference in the cathode behavior of Cu immersed and under the electrolyte film disappears. The anodic polarization of Cu under thinner films of electrolyte increases. Fe in the role of an anode evidences anomalous polarization curves which result from some activation of its surface. A method is proposed for calculating the corrosion process according to the curves of the distribution of potentials on the surface of the local element working under thin layers of electrolyte. It is shown that for the Fe-Cu pair (at a distance of 0.25 mm between the electrodes) working under a layer of 0.1N solutions of NaCl or Na<sub>2</sub>SO<sub>4</sub> or of distilled water the cathodic polarization resistance constitutes 70-92%, the anodic one can increase to 26-28%, and the ohmic potential drop constitutes only 4-6% of the initial potential difference.

- |                      |                                       |                |
|----------------------|---------------------------------------|----------------|
| 1. Metals--Analysis  | 2. Thin layers--Metallurgical effects | P.S.           |
| 3. Metals--Corrosion | 4. Electrolytes--Performance          | 5. Mathematics |
- Card 2/2

ROZENFEL'D, I. L.  
GERASIMOV, V. V.; ROZENFEL'D, I. L.

Effect of temperature on the rate of corrosion in metals.  
Izv. AN SSSR Otd. khim. nauk no.10:1166-1171 O '57. (MIRA 11:3)

1. Institut fizicheskoy khimii AN SSSR.  
(Corrosion and anticorrosives)

ROZENFEL'D, I.L.; PAVLUTSKAYA, T.I.

Method for determining polarization and ohmic resistances in local elements under thin electrolyte layers. Zav. lab. 23 no.4:446-449 '57. (MLRA 10:6)

1. Institut fizicheskoy khimii Akademii nauk SSSR.  
(Electrolytic corrosion) (Electric resistance)

ROZENFEL'D, I.L.

32-6-13/54

AUTHOR  
TITLE

ROZENFEL'D, I.L., ZHIGALOVA, K.A.  
Method for Volume Research for Metal Corrosion by Means of the  
Periodical Moistening of the Metals With Electrolyte.  
(Ob'yemnyy metod issledovaniya korrozii metallov pri periodicheskom  
smachivanii ikh elektrolitami -Russian)  
Zavodskaya Laboratoriya, 1957, Vol 23, Nr 6, pp 687-689 (U.S.S.R.)  
Received 7/1957  
Reviewed 8/1957

PERIODICAL

ABSTRACT

It is claimed in this paper that the methods applied for the volume investigation of corrosion are more sensitive than the methods according to weight and are therefore more often applied in laboratories. Hitherto it has, however, not been possible to construct a suitable apparatus based upon this principle. The apparatus suggested by STEKEL and WHITON do not permit carrying out experiments at water vapor densities which correspond to relatively low moisture denominators. In this paper a device is suggested which permits the kinetic research of the corrosion process according to the quantity of the absorbed oxygen at any steam density. A device constructed on the basis of this principle is described here, which consists of two glass containers connected by means of a horizontal manometer tube. In the interior of this tube an electrolyte rod is fitted, which is able to shift either to the right or to the left. One of the containers contains a float with a guide which can be moved only in an upward or downward direction. The steel objects to be investigated are fastened on to the float. The shiftings of the electrolyte rod in the manometer tube indicate the oxygen absorbed by the examined object. A solution

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Method for Volume Research for Metal Corrosion by Means 32-6-13/54  
of the Periodical Moistening of the Metals With Electrolyte.

of 0,5 -ntn sodium chloride serves as moistening liquid for the objects to be examined (which effects oxygen absorption). The apparatus described serves for the investigation of the corrosion process at relative moistness, which is effected by the moistening solution contained in the reaction container, as well as in the case of any relative moisture, which is obtained by soaking the object to be examined by means of pressure exercised on the float.

(With 3 illustrations).

ASSOCIATION  
PRESENTED BY  
SUBMITTED

AVAILABLE  
Card 2/2

Library of Congress

ROZENFEL'D, I.L.; MARSHAKOV, I.K.

Corrosion mechanism of metals in narrow slits and crevices.

Part 2: "Crevice corrosion" of iron in corrosion-inhibiting.

Zhur.fiz.khim. 31 no.1:72-82 Ja '57.

(MLRA 10:5)

1.Akademiya nauk SSSR, Institut fizicheskoy khimii, Moskva.  
(Iron--Corrosion)

ROZENFELD, I. L.

18  
 / The mechanism of metal corrosion under thin layers of electrolytes. I. L. Rozenfeld and T. I. Pavlutskaya. Phys.-Chem. Inst. Acad. Sci. U.S.S.R., Moscow. Zhur. Fiz. Khim. 31, 324-34 (1957). - The p.d. and c.d. distribution upon the electrodes was detd. under thin layers of electrolytes (70-165  $\mu$  thick) by using as models of corrosion elements some short-circuit couples with electrodes in a single plane and detg. the p.d. and c.d. along the surface. Changes of potential were observed only upon the cathodes; Fe and Zn in 0.1N NaCl or Na<sub>2</sub>SO<sub>4</sub> solns. behaved like nonpolarizable anodes. The anodic polarization was somewhat increased when using distd. H<sub>2</sub>O only, but the corrosion current was always detd. by the cathode-process rate. The total corrosion current in the layers was lower than through the bulk of the soln., but the c.d. at the contact surface was higher than when the electrodes were completely immersed in the liquid. The relation between the ohmic and the polarization resistances of the corrosion elements 0.25 mm. apart in distd. H<sub>2</sub>O, 0.1N NaCl, and Na<sub>2</sub>SO<sub>4</sub> solns. represented only 4-6% of the initial p.d. The absence of anodic polarization and the ohmic drop in p.d. explains the cathodic O-reduction process. With the electrolytes investigated, the cathodic polarization resistance formed 70-82% of the total resistance. W. M. Sternberg.

RM [Signature]

*Rozenfel'd, I. L.*

AUTHORS: Rozenfel'd, I. L., Marshakov, I. K. 76-10-24/34

TITLE: The Mechanism of Metallic Corrosion in Narrow Crevices and Slits. IV. The Corrosion of Aluminum and Some of Its Alloys (Mekhanizm korrozii metallov v uzkih zazorakh i shohelyakh. IV. Korroziya alyuminiya i nekotorykh yego splavov).

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 10, pp. 2328-2335 (USSR)

ABSTRACT: The corrosion- and electrochemical behavior of the aluminum and of some of its alloys in narrow slits and sodium-chloride solutions was investigated. It was found that the corrosion velocity of the metal in the narrow slit is greater by circa one order of magnitude than the corrosion velocity of the same metal surrounded by an electrolyte. It is shown that an increased corrosion of the investigated metals in the slits is due to the variation of composition of the corrosion medium in the slit in consequence of the activity of the macroelements which are caused by the unequal velocity of the oxygen conduction in the slit and to the metal surrounded by the electrolyte. The phenomenon of the negative difference

CARD 1/2

The Mechanism of Metallic Corrosion in Narrow Crevices and Slits. 76-0-24/34  
IV. The Corrosion of Aluminum and Some of Its Alloys

effect in aluminum in a narrow slit was investigated. It was found that in the case of an anode polarization the amount of the difference effect reaches in aluminum 40 - 47 %. It is shown that such an extraordinary increase of the difference effect is due to an acidification of the electrolyte in the slit in consequence of the hydrolysis of the anode reaction products. There are 7 figures, 1 table, 11 Slavic references.

ASSOCIATION: Institute for Physical Chemistry of the AN USSR, Moscow  
(Akademiya nauk SSSR, Institut fizicheskoy khimii, Moskva).

SUBMITTED: September 29, 1956

AVAILABLE: Library of Congress

CARD 2/2

ROZENFEL'D, I.L.; OSHE, Ye.K.

Effect of radiation on the electrochemical activity of zirconium.  
Dokl. AN SSSR 114 no.1:143-145 Ny '57. (MIRA 10:7)

1. Institut fizicheskoy khimii Akademii nauk SSSR. Predstavleno  
akademikom A.N.Frumkinym.  
(Zirconium alloys)

LAPATUKHIN, Veniamin Semenovich; BALEZIN, S.A., prof., retsenzent;  
ROZENFELD, I.L., doktor khim. nauk, red.; TAIROVA, A.L., red.  
izd-va; MODEL' B.I., tekhn. red.

[Phosphating metals; studying the processes of cold and rapid  
phosphating] Fosfatirovanie metallov; issledovanie protsessov  
kholodnogo i uskorenogo fosfatirovaniia. Moskva, Gos. nauchno-  
tekhn. izd-vo mashinostroit. lit-ry, 1958. 262 p. (MIRA 11:8)  
(Phosphate coating)

S/123/59/000/010/038/068  
A004/A001.

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1959, No. 10, p. 121,  
# 38105

AUTHORS: Rozenfel'd, I. L. Zhigalova, K. A.

TITLE: On the Corrosion Mechanism of Metals Which are Periodically Wetted  
With Electrolytes

PERIODICAL: Tr. Vses. soveshchaniya po bor'be s morsk. korroziei metallov.  
1956, Baku, Azorneft'nashr, 1958, pp. 57-81

TEXT: Bibliographic entry

Card 1/1



~~ROD~~ ROZENFELD, I.L.

SOV/81-59-19-67382

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 19, p 69 (USSR)

AUTHORS: Rozenfel'd, I.L., Oshe, Ye.K.

TITLE: On the Mechanism of Activation of Electrodes of Local Elements at Irradiation

PERIODICAL: V. sb.: Deystviye ioniziruyushchikh izlucheniya na neorgan. i organ. sistemy. Moscow, AS USSR, 1958, pp 103 - 113

ABSTRACT: The effect of electron radiation on the corrosion rate of the couples Zr-Al, Zr-Fe and Fe-Al in a 3% NaCl solution has been investigated. The dependence of the intensity of corrosion current on the duration of irradiation and the intensity of radiation has been determined. At irradiation of the cathode the corrosion rate rises sharply; irradiation of the anode has no effect on the corrosion current. The authors assume that under the effect of irradiation the electroconductivity of the oxide film, which has semiconductor properties, on the cathode increases so that an acceleration of the cathode reaction and of the corrosion process of the couple on the whole is caused.

Yu. Pleskov ✓

Card 1/1

AUTHORS: Rozenfel'd, I. L., Rubinshteyn, F. I. SOV/62-58-6-4/37  
Zhebrovskiy, V. V.

TITLE: On the Passivating Properties of Pigments (O passiviruyushchikh svoystvakh pigmentov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 6, pp. 679 - 683 (USSR)

ABSTRACT: The authors first deal with the problem of protecting metals from corrosion, especially by the electro-chemical method. The process of metal passivation by means of pigments has hitherto hardly been investigated at all. The authors studied the passivating properties of chromatic pigments. The irreversible electrode potential of steel in the thin layers of the aqueous extractions of pigments is shifted by 200-300 mV in the positive direction and begins to become stable. The potential of steel depends to a high degree on the nature of the pigment. According to their passivating properties chromatic pigments may be classified in the following order: Mixed barium-potassium chromate (technical)-mixed barium-potassium chromate (chemically pure) - strontium-chromate - zinc chromate. It was shown that the sharp contrast

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On the Passivating Properties of Pigments

SOV/62-58-6-4/37

with respect to the passivating properties of pigments is due to the difference in solubility of the passivating part of the pigments. The concentration of  $\text{CrO}_3$  in aqueous extractions of chromate is considerably stronger than in those of strontium- and zinc chromate (10-13 g/l instead of 0,5 g/l). There are 4 figures and 3 references, 2 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR i Gosudarstvennyy issledovatel'skiy proyektnyy institut (Institute of Physical Chemistry AS USSR, and State Institute of Research and Planning )

SUBMITTED: February 15, 1957

1. Metals--Passivation
2. Metals--Corrosion prevention
3. Pigments--Properties
4. Chromates--Properties

Card 2/2

ROZENFEL'D, I.L., prof.; PERSIANTSEVA, V.P., kand.tekhn.nauk

Corrosion inhibitors. Khim. nauka i prom. 3 no.4:500-505 '58.  
(MIRA 11:10)

(Corrosion and anticorrosives)

ROZENFELD T. L.

AUTHORS: Rozenfel'd, I. L. , Ol'khovnikov, Yu. P. 32-2-16/50

TITLE: The Capacity Method for the Determination of the Thickness of Layers and Non-Porous Character of Lacquer Coatings on Metals (Yemokostnyy metod opredeleniya tolshchiny i sploshnosti lakokrasochnykh pokrytiy na metallakh)

PERIODICAL: Zavodskaya Laboratoriya. 1958, Vol. 24, Nr 2, pp. 173-176(USSR)

ABSTRACT: A method is suggested for which the magnetic properties of the metal are not of interest and where the covering layer to be investigated is not damaged. The method is based on the change of capacity of a condenser caused by the different thickness of layer of the dielectric between its layers having a constant surface. With the methods mentioned in publications until now, concerning the measurement of the thickness of layers by means of the changes of capacity, the metallic electrodes did not have any perfect contact with the surface to be investigated. In the present case a cell with an electrolytic solution ( $K_2Cr_2O_7$ ) serves as electrode with the solution getting into close contact with the surface to be investigated by means of a little piece of felt and thus

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The Capacity Method for the Determination of the Thickness of  
Layers and Non-Porous Character of Lacquer Coatings on Metals

32-2-16/60

makes possible an exact measurement. The Thickness of layer is determined from a calibration curve fixed in advance which expresses the ratio between the thickness of the layer and the capacity. The curves obtained are hyperbolae and are graphically represented for redlead oxide as well as for three other substances. The method makes possible measurements with an exactness of from 3-5%. For determinations in commercial enterprises a special cell was developed, which in principle is similar to the first mentioned. Besides, measurements of the thickness of layers also pores in lacquer coatings etc. can be determined by means of the capacity cell. There are 4 figures.

ASSOCIATION: Institute for Physical Chemistry AN USSR (Institut fizicheskoy khimii Akademii nauk)

AVAILABILITY: Library of Congress

1. Coatings-Measurement
2. Metal-Coatings-Measurement
3. Lacquer coatings-Measurement

Card 2/2

AUTHORS: Rozenfel'd, I.L., Oshe, Ye.K. 32-3-33/52

TITLE: A Device for the Investigation of the Corrosion- and Electro-chemical Behavior of Metals Under the Action of Ionizing Radiation (Pribor dlya issledovaniya korroziionnogo i elektrokhimicheskogo povedeniya metallov pri vozdeystvii ioniziruyushchego izlucheniya)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 3, pp. 346-348 (USSR)

ABSTRACT: A simple method of determining is recommended which, among other things, also makes it possible to determine the influence exercised by ionizing radiation on anode- and cathode processes. This device consists essentially of a cell through which the electrolyte circulates and in which the samples to be investigated are fixed, one of them being connected as an anode, the other as a cathode. During the test a milliammeter measures the amperage from which it is possible to draw conclusions as to the course taken by corrosion. In the case of electron radiations the front sample is earthed by way of another milliammeter. In the case described

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A Device for the Investigation of the Corrosion-  
and Electrochemical Behavior of Metals Under the  
Action of Ionizing Radiation

32-3-33/52

here a 3% common salt solution is used. The results of the investigation showed that irradiation of the sample as a cathode caused corrosion to increase sharply, whereas this was not the case when the sample took the place of an anode. Data concerning measurements carried out with zirconium iron in a 3% NaCl-solution are given. The phenomena observed were mentioned already in previous papers. There are 2 figures, and 3 references, 3 of which are Slavic.

ASSOCIATION: Institute of Physical Chemistry AS USSR (Institut fizicheskoy khimii Akademii nauk SSSR)

AVAILABLE: Library of Congress

1. Anode corrosion-Ionizing radiation effects
2. Milliammeter-Applications
3. Cathode corrosion-Ionizing radiation effects

Card 2/2



AUTHORS: Persiantseva, V. P., Rozenfel'd, I. L. SOV/32-24-7-22/65

TITLE: The Laboratory Methods of Volatile Inhibitor Determination  
(Laboratornyye metody issledovaniya letuchikh ingibitorov)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 7,  
pp. 832 - 836 (USSR)

ABSTRACT: First a method is described according to which the sample is first wrapped in the inhibited paper and then in paraffinated paper. It is then placed in the corrosion chamber. The tests were conducted at a relative humidity of 100° at a constant temperature, at static conditions, or at a passage of moist air. A schematic illustration of the device and a few variants of performing the experiments are described. In order to approach the experiments to real corrosion conditions, an equipment was constructed which permits a periodic condensation and drying of moisture on the samples. Thus, the velocity of corrosion can be varied by the number of cycles. The device consists of an exsiccator with a tubular glass ring. On this ring, the

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The Laboratory Methods of Volatile Inhibitor  
Determination

SOV/32-24-7-22/65

samples are placed. By passing hot or cold water through the tube a condensation and a drying can be, caused alternatively with respect to the temperature difference as compared with the interior of the exsiccator. The volatile inhibitor is kept at the bottom of the exsiccator. A comparison of the results with that of a nine months' investigation performed at a relative humidity of 100% showed that this method exposes the properties of the inhibitor in a satisfactory way. In order to determine the influence of volatile inhibitors upon electrochemical processes under atmospheric conditions of corrosion, the method by I.L.Rozenfel'd and T.I.Pavlutskaya (Ref 7), and the apparatus by T.I.Lukonina, K.A.Zhigalova, and I.L.Rozenfel'd (Ref 8) were used. This apparatus was modified in that respect, as the electrolyte film is applied to the electrode in the exsiccator. A figure illustrating the apparatus is given. The determinations were carried out with steel electrodes with a film of a thickness of 160 $\mu$  consisting of a 0,001 n sodium sulfite solution. The results of the measurement of the potential changes, which

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The Laboratory Methods of Volatile Inhibitor  
Determination

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were obtained with dicyclohexamine nitrite as inhibitor lead to the assumption that the corrosion inhibiting effect is basically due to an inhibition of the cathode reaction of oxygen reduction. There are 5 figures and 7 references, 3 of which are Soviet.

Card 3/3

ROZENFEL'D, I.L., doktor khim. nauk.; MARSHAKOV, I.K., inzh.

Corrosion of steels in contact with packing materials. Sudostroenie  
24 no.9:46-49 S '58. (MIRA 11:11)

(Steel--Corrosion) (Ships--Equipment and supplies)